IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	09/765,965	Examiner:	Shang, Annan Q.
Filed:	January 19, 2001	Group/Art Unit:	2424
		Atty. Dkt. No:	5266-05200
Inventor(s):	Hensgen, et al.		
Title:	SYSTEM AND METHOD FOR PROVIDING MULTI-PERSPECTIVE INSTANT REPLAY		

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REPLY BRIEF TO EXAMINER'S ANSWER

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

This Reply Brief is filed in Response to the Examiner's Answer mailed on December 3, 2008.

STATUS OF CLAIMS

Claims 1-5 and 7-56 are pending and rejected, and are the subject of this appeal.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-5, 7-22 and 25-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,144,375 (hereinafter "Jain").

2. Claims 23-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jain in view of U.S. Patent No. 6,289,165 (hereinafter "Abecassis").

3. Claims 1, 15, 20, 31 and 45 are rejected under 35 U.S.C. § 112.

REMARKS

The below is presented in response to the Examiner's Response to Argument in the Examiner's Answer. Appellants have presented below responses to any *new* statements by the Examiner. Thus, where no new discernable arguments were presented in the Examiner's Answer, Appellants have not added further responses, but relied on those presented in the Appeal Brief.

The Examiner's Response to Applicant's Argument is itemized as section 10 on pages 10-13 of the Examiner's Answer. Appellants will generally refer to paragraphs of section 10 in the discussion below as appropriate.

Rejections Under 35 U.S.C. § 112

Appellant notes in the Examiner's Answer, the examiner has withdrawn the 35 U.S.C. § 112 rejections.

Rejections Under 35 U.S.C. § 102

Claims 1-5, 7-22 and 25-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,144,375 (hereinafter "Jain").

Appellant has carefully reviewed and considered the examiner's comments in the Examiner's Answer. However, Appellant submits it remains clear that the claimed features are not disclosed or suggested by the cited art and the cited art clearly teaches the contrary.

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481,

485 (Fed. Cir. 1984). The identical invention must be shown in as complete detail as is contained in the claims. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

In the Examiner's Answer, the examiner provides a general discussion concerning the Jain reference, and concludes large paragraphs of discussions with a number of citations to the reference. Appellant previously dissected the citations provided by the examiner to show the recited claim features are not disclosed therein. Appellant reproduces the requirements of an anticipation rejection above in order to contrast what is required of such a rejection and what the examiner has provided. In the examiner's Response to Argument, the examiner compresses – using ellipses – the entirety of Appellant's arguments into a single paragraph. The examiner then states he disagrees and provides a general discussion of Jain without direct reference to the features of the presently claimed invention. Note Appellant has not argued that Jain doesn't disclose a multi-perspective video system. Appellant argues, and maintains, that Jain does not disclose all the features of the presently claimed invention.

With regard to application of the cited art to the claim features, there are numerous deficiencies – much of which has been discussed in the Appellant's Appeal Brief. Applicant will highlight here some of those deficiencies. For example, claim 1 recites a method which includes the features:

> "providing input from a viewer which indicates a desire to replay the portion of the program from a second perspective of the plurality of perspectives."

As seen from the recitation above, the features includes providing input from a viewer. Additionally, the input from the viewer provides a particular indication – in this case it indicates a desire to replay the portion of the program from a second perspective of the plurality of perspectives. In section 9 of the Examiner's Answer, it is suggested

that these features are disclosed by Jain at col. 22, lines 6-41. However, Appellant disagrees. Col. 22, lines 6-41 of Jain provide a description of output on a display device ("a typical display 401 generated by the . . . viewer method and apparatus 400." Jain, col. 22, lines 6-7). Nowhere in this disclosure is there any mention of user input. For at least this reason the rejection is deficient. Further, while there is a "user button input area" mentioned (line 18), there is no disclosure concerning a button which enables a user to indicate a desire to replay the portion of the program from a second perspective of the plurality of perspectives as recited.

In section 10 of the Examiner's Answer, the only reference to viewer input is the following comment by the examiner:

> "Jain further discloses a Scene Analysis Unit which processes scene(s) by estimating; approximating and interpolating between frames and assigning time information to a sequence of frames of a scene (note the scene analysis unit is further disclosed in Jain et al., Pat. 5,729,471 which is incorporated by reference, co1.3, lines 29-63). . . . Jain clearly discloses that the various frames or frame sequence includes time information and upon a user interaction to select a scene of interest, the system selects the best image (frame) of the camera to present the best image (frame) sequence, by estimating or approximating and interpolating between frames using the accompanying time/offset information to synchronized and present to the user the video sequence of interest (col.1 lines 45-58, co1.13, line 34-co1.14, line 11, co1.18, line 53-co1.19, line 8, co1.22, lines 43-67)." (Examiner's Answer, pages 11-12).

Here for the first time the examiner introduces Pat. 5,729,471 mentioned in Jain. It would appear the reason for introducing this reference is perhaps to address the features of claim 56 which recite interpolation. However, as will be discussed later, even here the citation is unrelated to the claim features. With regard to the recited viewer input, the above disclosure simply states "upon a user interaction to select a scene of interest, the system selects the best image (frame) of the camera to present the best image (frame)

sequence." Therefore, the disclosed user interaction simply selects or indicates "a scene of interest." Appellant submits this is not equivalent to "providing input from a viewer which indicates a desire to replay the portion of the program from a second perspective of the plurality of perspectives" and Jain does not anticipate claim 1 for at least these reasons. Independent claims 15, 20, 31 and 45 include features similar to those discussed above and are not anticipated by Jain for at least reasons similar to those above. Accordingly, all claims are patentably distinguishable for at least these reasons.

In addition to the above, claim 1 recites the further features

> "automatically determining a second point in time in the second perspective, wherein the second point in time comprises an approximation of the first point in time in the program."

In section 9 of the Examiner's Answer, the examiner provides the following comments suggesting that Jain discloses:

> "Automatically determining a second point in time in the second perspective where the second point in time comprises an approximation of the first point in the program and presenting the portion of the program from the second perspective to the viewer, beginning at the second point in time, storing meta-data corresponding to each one of more of the plurality of perspectives of the program, the meta-data comprising a least time and/or offset for each of the corresponding one or more plurality of perspectives (co1.23, line 66-co1.24, line 24, line 47-co1.25, line 7, line 58-co1.26, line 1 + and co1.27, line 33-co1.28, line 27), note that all the perspectives are related to each other on an intuitive manner."

Before examining the extensive listing of disclosures cited above to try and discern where it is suggested the recited features are disclosed, Appellant first addresses

the final comment by the examiner above – "note that all the perspectives are related to each other on an intuitive manner." It is not clear to Appellant how to define "intuitive" in this context, and how it may relate to the presently claimed invention. On searching the Jain reference Appellant notes the term appears nine times without a clear definition. The only clear guidance given by Jain as to the meaning of "intuitive" as disclosed is what it does not mean. For example, Jain discloses:

> "The present viewer is thus much more flexible, powerful and intuitive than are the prior art user interfaces because the prior art interfaces constrain the user to moving forward or backward in time. This constraint becomes particularly awkward in applications where time is not a convenient or intuitive linking mechanism."

Therefore, it would appear Jain's use of the term "intuitive" is to contrast with prior art interfaces/applications which are time based in some sense. Whatever is meant by the term, it does not support an anticipation based rejection of the features "automatically determining a second point in time in the second perspective, wherein the second point in time comprises an approximation of the first point in time in the program." Rather, it may be seen as teaching something against such features as these features are directed to particular points in time.

Turning now the citations themselves concerning the features "automatically determining a second point in time in the second perspective, wherein the second point in time comprises an approximation of the first point in time in the program", Appellant has reproduced the cited disclosures in their entirety below. As seen, nowhere is there any disclosure of these features.

> "The user is able to manipulate the 3D model to obtain desired perspectives and/or data pertaining to the real-world environment. The 3D model represents the sensed real-world environment. The spatial coordinates of the 3D model approximately correspond to the spatial coordinates of the sensed real-world environment.

As described in the co-pending application, the user interface displays a 2D model window 406 on the visual display 401. The 2D model corresponds to the 3D model of the real world environment. The user thereby interacts and manipulates the 3D view by interacting with the 2D view of the real-world environment shown in FIG. 7 as the model window 406. Based on input received from a user, the 3D model is manipulated to select a two-dimensional view of the sensed real-world environment. In addition to changing the video clip displayed in the video window 402, all other windows and display information related to the selected event and or object are concurrently displayed to the user. Therefore, the present viewer 400 advantageously synchronizes and tracks all of the multiple multi-media data types associated with a particular viewing perspective and selected event. The user simply needs to point and click on a particular object, event, or spatial region in the 2D model, and all of the windows of the display 401 are appropriately modified to display the requested information.

. . .

A "next/previous" button is provided that will cause the viewer 400 to display the next or previous perspective or view in both the model window 406 and the video window 402. As described above, multi-media events are synchronized and organized along a system timeline, and thus one selected event follows or precedes another selected event. A "lost" control button is preferably provided. The lost button causes the viewer 400 to display the location of a selected camera or cameras in the model window 406. Similarly, the model navigation controls allow the user to display the coverage areas provided by a selected sensor or camera. Pan, rotate and zoom controls are provided using the navigation controls. The user can therefore cause the 2D model display (and subsequently cause the video display in the video window 402) to pan, rotate and zoom in and out.

Advantageously, and as described in more detail in the co-pending 3D User Interface application, a "tracking" button is provided which instructs the interactive multi-media system and viewer to "follow" a selected object or player. Once a player or other object is selected by the user, the best view of the selected player or object is continuously provided to the viewer in both the video window 402 and the model window 406. The player's every move is continuously displayed to the user until a view of the player is no longer available or until another user input is provided. In addition, all other information associated with the varying views of the selected object or player are also continuously provided to the display 401.

. . .

As shown in FIG. 7, the display 401 also includes a means for controlling the video window 402 display (and other displays) using context-sensitive VCR

controls 414. First, standard "play", "reverse", "forward" and "pause" controls are provided. These controls are similar to analogous controls that are available on standard video cassette recorders, and they function similarly to control the display of video clips in the video window 402. In an alternative embodiment, the VCR control area 414 may also function to allow the user to fast forward (or reverse) between multi-media "events" that are sequenced on a global system timeline within the system database. For example, in the football example described above, the user may move forward to an important play that occurred subsequent to the current play simply by pressing a control button in the VCR control area 414.

. . .

Importantly, and depending upon the user query, alternate "best views" of a particular object, player or event will be indicated to the user by flashing the camera button capable of providing the next best view. For example, when the user manually operates the viewer, the user manually selects a viewing perspective of a player by pressing a camera button. As the player moves, and as the play develops, the camera selected may no longer provide the best perspective from which to view the player. Therefore, depending upon the user query, the viewer automatically hints to the user that another camera may have a better perspective than the one presently being used. In a "tracking" mode, the system will automatically switch control to the camera having the "best" viewing perspective. Depending upon the application, the viewer uses several criteria in determining the camera angle having the best view of a selected object, player, or event. For example, the viewer can use the field of view provided by a given camera as a best view criterion. In this case, camera selection can be based upon the location of the selected player or object within the frame (preference generally being given to cameras having the object centered within the frame), or the size of the object within the frame. Other "best view" criteria include: the proximity of the camera with respect to the object; the location of the camera; the direction of travel of a selected object; and whether or not the camera is stationary or mobile (moving cameras may track fast moving targets better than a stationary cameras). Finally, the best view possible may depend upon the viewing perspective that a user indicates in the model window 406.

Switching between Camera Angles by Dragging Mouse in a Pre-defined Direction

One of the interesting features provided by the present viewer is its ability to allow a user to intuitively change viewing perspectives using a mouse or other pointing device. As described above, one simple means for changing viewing perspectives is clicking on a camera associated with a desired perspective. Alternatively, the viewing perspective can be changed by positioning a cursor

over the viewing window 402 and subsequently dragging the cursor in a pre-determined direction to the edge of the viewing window 402. For example, in one preferred embodiment, a user positions a cursor in the viewing window 402 and drags the cursor in a vertical direction (either up to the top of the window 402 or down to the bottom of the window 402). This action causes the viewer to display the video information generated by a different camera. In the preferred embodiment, dragging the cursor to the top of the viewing window 402 will cause the viewer to display the video output of a previous (logically previous) camera. Similarly, dragging the cursor to the bottom of the viewing window 402 causes the viewer to display the output of a next camera. In one embodiment, the viewing perspectives (the "current", "previous" and "next" camera viewing perspectives) are related to each other in an intuitive manner. For example, the viewing perspective shown when the cursor is dragged in an upward direction is above that currently displayed in the video window 402. Similarly, the viewing perspective shown when the cursor is dragged in a downward direction is below that currently displayed in the video window 402. As described below in more detail, a similar pointing and dragging technique can be used to dynamically change the event displayed by the viewer.

Statistics and Information Viewing Window

The display 401 preferably includes a window for displaying statistics and other data associated with the multi-media event currently being displayed. In the football game example, this data can be statistical data about a player, a team, the yards per carry, interceptions, etc. In the embodiment of the interactive multi-media system 300 described above with reference to FIG. 6, a Stat. Crew computer 318 provides this statistical information. As described above, the multi-media system links and synchronizes the statistical information provided by the Stat. Crew computer 318 with all of the other data types (video, audio, etc.) associated with the multi-media event. Therefore, when an event is selected by the user and displayed in the video display 402, all of the statistical data associated with the selected event is concurrently displayed in the statistics and information viewing window 420. Both internally and externally generated statistical data is displayed in the window 420. Also, in one embodiment of the present viewer, a search text field is provided. The search text field is used by the user to search the database for selected text or statistical data." (Jain, co1.23, line 66-co1.24, line 24, line 47-co1.25, line 7, line 58-co1.26, line 1 + and co1.27, line 33-co1.28, line 27).

While extensive, the above disclosure describes a 3D modeling system which enables the selection of a desired perspective within the 3D space. Some of these disclosures were also discussed in Appellant's appeal brief. However, there is no

disclosure here of "automatically determining a second point in time in the second perspective, wherein the second point in time comprises an approximation of the first point in time in the program."

In section 10 of the Examiner's Answer, the further comments provided by the examiner do not provide any citation to a disclosure of Jain which discloses these features. Accordingly, Appellant submits Jain does not disclose these recited features and claim 1 is not anticipated for at least these further reasons. Independent claims 15, 20, 31 and 45 include features similar to those discussed above and are not anticipated by Jain for at least reasons similar to those above. Accordingly, all claims are patentably distinguishable for at least these reasons.

Appellant previously discussed and maintains the absence of any disclosure in Jain regarding the features of claim 1 which recite "periodically storing broadcast meta-data corresponding to each of one or more of the received plurality of perspectives of the program, said meta-data comprising at least time and/or offset information for each of the corresponding one or more plurality of perspectives."

Regarding dependent claims 11-12, it escapes the Appellant how the suggestion that such features are disclosed by Jain can be maintained. There is nothing in the entirety of Jain that remotely resembles such features. For example, claim 12 recites the further features:

> "wherein determining the second point in time in the second perspective comprises:
>
> searching stored meta-data to identify two consecutive offsets corresponding to the first perspective, such that the interval represented by the two consecutive offsets includes the first offset;
>
> utilizing a stored time corresponding to each of the two consecutive offsets to determine an approximated point in time;

searching stored meta-data to identify two consecutive times corresponding to the second perspective, such that the interval represented by the two consecutive times includes the approximated point in time;

utilizing a stored offset corresponding to each of the two consecutive times to determine an approximated offset; and

locating an offset in the second perspective which is near the approximated offset."

Such features are entirely and wholly absent from the cited art. Further, there is nothing in the cited art which remotely suggests such features.

Finally, in section 10 of the Examiner's Answer, the examiner makes a variety of comments regarding interpolation and a reference to Patent No. 5,729,471. Appellant has reviewed the disclosure of Patent No. 5,729,471 and submits the references therein bear no resemblance to the recited interpolation features. For example, claim 56 recites the features "wherein said locating comprises performing interpolation." In this case, the "locating" of claim 56 has antecedent basis in claim 12 which recites the features (among others) "locating an offset in the second perspective which is near the approximated offset." In contrast, interpolation in Patent No. 5,729,471 is related to predicting the location of an object in 3-dimensional space. In particular, Patent No. 5,729,471 discloses the following:

"5.3 Interpolation

Ideally the scene analysis process just described should be applied to every video frame in order to get the most precise information about (i) the location of players and (ii) the events in the scene. However, it would require significant human and computational effort to do so in the rudimentary, prototype, MPI video system because feature points are located manually, and not by automation. Therefore, one key frame has been manually selected for every thirty frames, and scene analysis has been applied to the selected key frames. For frames in between, player position and camera status is estimated by interpolation between key frames by proceeding under the assumption that

coordinate values change linearly between a consecutive two key frames." (emphasis added).

As seen from the above, the interpolation of Jain bears no relation to "locating an offset in the second perspective which is near the approximated offset." Therefore, Appellant submits the examiner's comments which include the term "interpolation" are not relevant to the presently claimed invention.

CONCLUSION

For the foregoing reasons, it is submitted that the remaining rejections are erroneous, and reversal of the rejections is respectfully requested.

The Commissioner is authorized to charge any fees that may be due to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5266-05200/RDR.

Respectfully submitted,

/Rory D. Rankin/
Rory D. Rankin
Reg. No. 47,884
Attorney for Appellants

Meyertons, Hood, Kivlin,
Kowert & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
(512) 853-8850

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